

## ABSTRACT

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In a wheel speed detection system wherein an eddy current displacement sensor is used, even when a distance between the eddy current displacement sensor and a convex portion of a rotator changes due to a change in load on a wheel, an error in a wheel assembly during a maintenance or other reasons, wheel speed can be detected accurately. Sensor detection voltage corresponding to an impedance change of a detection coil (11) generated in association with wheel rotation is inputted into a signal processing device (20). In a signal level determination unit (22), threshold voltages ( $V_{TH}$  and  $V_{TL}$ ) are calculated based on sensor detection voltage after A/D conversion. Specifically, the difference between the average of sensor detection voltage, when the facing distance between a sensor head (10a) and a convex portion (7a) is a preset default facing distance ( $d_0$ ), and the average of actual sensor detection voltage is obtained, and preset threshold voltages are shifted for the difference. Thereby, irrelevant to a change in the above-mentioned facing distance, sensor detection voltage can be converted into pulse signals by the constantly appropriate threshold voltages.